

What is claimed is:

1 1. A method for indexing a database table, said table comprising a column of values, the
2 method comprising the steps of:

3 identifying a plurality of substrings, each substring comprising one or more
4 characters; and

5 for each substring creating a corresponding index over the column, wherein each
6 corresponding index includes a respective entry for each value in the column, the
7 respective entry for a particular value being indicative of whether the corresponding
8 substring occurs in that particular value.

1 2. The method according to claim 1, wherein the respective entry for the particular value
2 is indicative of a number of occurrences of the corresponding substring in that particular
3 value.

1 3. A method for running a query on a database table, said table comprising a column of
2 values and including for each of a plurality of substrings, a corresponding index over the
3 column, wherein each corresponding index includes a respective entry for each value in
4 the column, the respective entry for a particular value being indicative of whether the
5 corresponding substring occurs in that particular value, the method comprising the steps
6 of:

7 identifying a set of values that potentially satisfy the query based on the plurality
8 of corresponding indices.

1 4. The method according to claim 3, further comprising the steps of:

2 scanning the set of values to find matching values satisfying the query; and
3 generating a result set of the matching values.

1 5. The method according to claim 4, wherein the step of identifying the set of values
2 includes the step of:

3 for each value, combining the respective entries from the corresponding indices.

1 6. The method according to claim 4, wherein the query includes a LIKE phrase.

1 7. The method according to claim 4, further comprising the steps of:

2 identifying a search term in the query;

3 separating the search term into a plurality of search substrings, each search
4 substring corresponding to one of the plurality of substrings; and
5 for each substring corresponding to a search substring, building its corresponding
6 index to generate a set of built indices.

1 8. The method according to claim 7, wherein each search substring has a length of two
2 characters.

1 9. The method according to claim 7, wherein there are 100 search substrings
2 representing, in character format, the numeric range from 00 to 99.

1 10. The method according to claim 7, wherein the step of identifying a set of values that
2 potentially satisfy the query includes the step of:

3 for each value, combining its respective entries from each of the built indices to
4 generate a composite entry, the composite entry indicative of whether all the search
5 substrings occur within the value.

1 11. The method according to claim 10, wherein each respective entry is a binary value;
2 and the respective entries are logically combined to generate the composite entry.

1 12. The method according to claim 10, further comprising the steps of:

2 building a bitmap over the column, each element of the bitmap corresponding to a
3 value of the column and each bitmap element value determined based on the composite
4 entry for the corresponding value, each such bitmap element value being on if the
5 composite entry indicates that all the search substrings occur within the value, otherwise
6 the value being off.

1 13. The method according to claim 12, wherein the step of scanning further includes:

2 scanning those values having a bitmap element with an on value.

1 14. The method according to claim 3, further comprising the steps of:

2 maintaining a history of received queries; and

3 creating one or more of the plurality of substrings based on the history.

1 15. The method according to claim 14, wherein the step of identifying one or more of the
2 plurality of substrings includes the steps of:

3 tracking a number of occurrences of a particular search substring within the
4 received queries; and

5 determining when the number of occurrences exceed a predetermined threshold.

1 16. An apparatus for executing a query on a database table, said table comprising a
2 column of values, the apparatus comprising:

3 at least one processor;

4 a memory coupled with the at least one processor; and

5 a program code residing in the memory and executed by the at least one processor,

6 the program code configured to:

7 create a corresponding index over the column, for each of a plurality of

8 substrings, wherein the corresponding index includes a respective entry for each value in

9 the column, the respective entry indicative of whether the substring occurs within the

10 value, and

11 identify a set of values that potentially satisfy the query based on the

12 plurality of corresponding indices.

1 17. An apparatus for executing a query on a database table, said table comprising a
2 column of values, the apparatus comprising:

3 at least one processor;

4 a memory coupled with the at least one processor;

5 a plurality of indices stored within said memory each index corresponds to one of
6 a plurality of substrings and each index includes a respective entry for each value in the
7 column, the respective entry indicative of whether the corresponding substring occurs
8 within the value; and

9 a program code residing in the memory and executed by the at least one processor,
10 the program code configured to scan the values of the table based on a combination of the
11 plurality of indices.

1 18. The method according to claim 17, wherein the program code is further configured
2 to:

3 build a bitmap based on the plurality of indices, the bitmap having an element for
4 each value of the column that is set based on the respective entries for that value from the
5 plurality of indices.

1 19. A program product for indexing a database table, said table comprising a column of
2 values, comprising:

3 program code configured upon execution thereof to:

4 identify a plurality of substrings, each substring comprising one or more
5 characters, and

6 for each substring, create a corresponding index over the column, wherein each
7 corresponding index includes a respective entry for each value in the column, the
8 respective entry for a particular value being indicative of whether the corresponding
9 substring occurs in that particular value; and

10 a signal bearing medium bearing the program code.

1 20. A program product for running a query on a database table, said table
2 comprising a column of values and including for each of a plurality of substrings, a
3 corresponding index over the column, wherein each corresponding index includes a
4 respective entry for each value in the column, the respective entry for a particular value
5 being indicative of whether the corresponding substring occurs in that particular value,
6 the program product comprising:

7 program code configured upon execution thereof to:

8 identify a set of values that potentially satisfy the query based on the
9 plurality of corresponding indices; and

10 a signal bearing medium bearing the program code.